

**REMARKS**

Claims 1-4, 6-14 and 16-21 are pending.

Applicants acknowledge the indicated allowability of claims 18 and 19 if rewritten in independent form, including all limitations of their respective base claims and any intervening claims from which they depend.

However, the Office Action rejected claims 1-4, 6-14, 16-17 and 20--21.

Reexamination and reconsideration of the present application are requested.

**35 U.S.C. § 103**

The Office Action rejected: claims 1-3, 9-11, 13 and 16-17 under 35 U.S.C. § 103 over Holmes et al. U.S. Patent 4,627,009 ("Holmes") in view of Kawashima U.S. Patent No. 5,955,739 ("Kawashima") and Staehle U.S. Patent 4,277,133 ("Staehle"); claims 7-8 and 12 under 35 U.S.C. § 103 over Holmes in view of Kawashima, Staehle, and Schram U.S. Patent 4,938,654 ("Schram"); claims 4, 6 and 14 under 35 U.S.C. § 103 over Holmes in view of Kawashima, Staehle and An U.S. Patent 5,852,300 ("An"); and claims 20-21 under 35 U.S.C. § 103 over Nomura et al. U.S. patent 4,948,330 ("Nomura") in view of Kawashima.

**Claim 1**

Among other things, the microscope of claim 1 includes a stage tilting unit that is displaceable in the x-y-z direction by the stage moving unit and includes a rotation shaft for pivotally supporting an end of the sample piece stage. Since the stage tilting unit can vertically rotate the sample piece stage from 0° to 180°, all portions of the wafer, including the back side, edge, bevel, etc., can be inspected using the microscope.

Applicants respectfully submit that neither Kawashima, Holmes, Staehle, nor any possible combination thereof disclose or suggest any microscope including such features. In particular, Holmes does not describe any pedestal that tilts from 0° to 180°. Therefore, it is impossible for Holmes to inspect all surfaces of a wafer.

Accordingly, for at least these reasons, Applicants respectfully submit that

claim 1 is patentable over the cited prior art.

Also among other things, **the microscope of claim 1 includes at least two wafer stoppers AT A RADIUS DISTANCE of a round portion of the semiconductor wafer from a central pivot of the semiconductor wafer.**

**Applicants respectfully submit that no device including such feature is disclosed or suggested by Holmes, Kawashima, Staehle or any combination thereof.**

The above statements appeared in exactly the same form in Applicants' previously filed amendment dated 7 January 2004. Accordingly, Applicants respectfully strongly traverse the statement in the Office Action dated 29 March 2004 that:

“Applicant’s (sic) arguments fail to comply with 37 C.F.R. 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims distinguishes them from the references.”

Office Action at page 8, lines 6-9.

**Applicants respectfully ask how they could POSSIBLY more clearly and specifically “point out how the language of the claims distinguishes them from the references” than they have already done by specifically quoting language from the claim and asserting that no combination of the prior art references would produce an apparatus including such features???**

Accordingly, Applicants respectfully request that the Examiner **withdraw** the above-cited statement from the Office Action.

Meanwhile, the Office Action fairly admits that Holmes and Kawashima fail to disclose such a feature, but states that such a feature is “suggested” by Staehle.

Applicants respectfully disagree.

At the outset, elements 34 and 36 in Staehle do not define a wafer stopper as

recited in claim 1. Staeble merely shows a side clip 34 with an inserting peg 36 that clips on top of a top surface of a slide 32, as clearly shown FIG. 1, for example. Indeed, the clip 34 in Staeble would be totally unsuitable for holding a semiconductor wafer onto a stage, nor does anything at all in Staeble suggest stoppers disposed at an edge or radius distance of a slide - or certainly of a wafer!

The Office Action states that:

“one skilled in the art will recognize that (s)he will arrange the stop device (34, 36) for maintaining the slide (32) on the platform (28) having two curved legs (34) in a suitable position so that the legs will encircle the central pivot point of the wafer on the system of Holmes et al.”

Applicants respectfully request that the Examiner provide some citation to something in the prior art in support of this conjecture. A rejection under 35 U.S.C. § 103 must be based on objective evidence of record, and cannot be supported merely on subjective belief and unknown authority. “The examiner can satisfy the burden of showing obviousness of the combination only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead the individual to combine the relevant teachings of the references.” In re Lee 61 U.S.P.Q.2d 1430, 1434 (2002) (emphasis added).

**Contrary to the statement in the Office Action at page 8, lines 10-14, Applicants are NOT arguing “against the references individually.” Applicants are traversing the very combination of references that has been proposed, asserting that there is absolutely no motivation in the prior art for making the combination that the Examiner has made, and that the only “motivation” one can find to combine the references as has been proposed by the Examiner is a hindsight reconstruction of Applicants’ claimed invention, which is of course impermissible.**

Applicants also specifically traverse the Examiner's statement that "*the movement of (Holmes) microscope with a rotatable frame will cause the specimen (sic) drop from the stage if the stop device is no being used.*" Applicants respectfully submit that this is completely wrong. In the first place, **the wafer stoppers of claim 1 do not hold the wafer onto the stage**, they only align it so that, for example, a vacuum chuck may properly hold the wafer onto the stage (see paragraph [0044] of the specification, at lines 4-8). Secondly, if one modified Holmes' apparatus to prevent the specimen from falling from the stage, one would not employ wafer stoppers which do not even hold a wafer to a stage, but would instead employ a vacuum (i.e, as disclosed in Applicants' specification!). Third, anyone having even a bare understanding of the art would never employ Staeble's clamping mechanism to hold a semiconductor wafer to a stage as it would undoubtedly damage a semiconductor wafer if it was applied to such a device. Instead, one of skill in the art would employ something like a vacuum chuck to hold the wafer to the stage (such as disclosed in Applicants' specification, for example).

Accordingly, Applicants respectfully request that the Examiner provide some citation to some **objective teaching** found in the prior art (and not just the Examiner's personal opinions) that would have motivated one of ordinary skill in the art at the time the invention was made to modify Staeble's side clip 34 to be located at a radius distance of a round portion of the semiconductor wafer, instead of clamping down on a top surface, and then to incorporate Staeble's newly-modified clip into Holmes' microscope (as modified by Kawashima). Otherwise, Applicants respectfully request that the Examiner allow claim 1.

#### Claims 2-3

Claims 2-3 depend from claim 1 and are deemed patentable for at least the reasons set forth above with respect to claim 1.

#### Claims 4 and 6

Claims 4 and 6 depend from claim 1. Applicants respectfully submit that An does not remedy the shortcomings of Holmes, Kawashima, Staeble with respect to

claim 1, as discussed above. Accordingly, claims 4 and 6 are deemed patentable for at least the reasons set forth above with respect to claim 1, and for the following additional reasons.

**Once again, contrary to the statement in the Office Action at page 9, lines 14-18, Applicants are NOT arguing “against the references individually.” Applicants are traversing the very combination of references that has been proposed, asserting that there is absolutely no motivation in the prior art for making the combination that the Examiner has made, and that the only “motivation” one can find to combine the references as has been proposed by the Examiner is a hindsight reconstruction of Applicants’ claimed invention, which is of course impermissible.**

Applicants respectfully submit that no proper motivation or suggestion has been supplied from the prior art to modify the microscope of Holmes (as already modified by Kawashima) to further include either a wafer detecting sensor (claim 4) or a zone detecting sensor (claim 6).

The Office Action states that:

“the use of detecting elements with the movable stage for detecting a flat region/area of a wafer and thus the presence of a wafer is (sic) a wafer inspection system is known in the art as can be seen in the system provided by An.”

Applicants respectfully disagree.

At most, An merely shows a flat zone detector was known in the wafer probe tester art. An does not show anything at all about the microscope art to which claim 1 pertains.

**The Office Action fails to provide any indication whatsoever as to why one of ordinary skill in the art of the present invention would look to An’s wafer probe testing art to modify Holmes’ apparatus to include a flat zone detector. In**

that regard, Applicants respectfully submit that nothing in cols. 2 or 5 of An states that An “is directed to the use of detecting elements for detecting the PRESENCE of the wafer on its support element,” as asserted at page 9, lines 19-20 of the Office Action. Instead, Applicants respectfully submit that An is concerned with locating a flat zone of a wafer that is already know to be located on the support element. Accordingly, Applicants respectfully submit that An in non-analogous art and not properly combinable with Holmes to maintain a rejection under 35 U.S.C. § 103.

Moreover, Applicants see no citation in the Office Action to anything in An which supposedly mentions a movable stage.. Furthermore, the Office Action fails to cite anything in Holmes or any other pertinent prior art reference that even suggests the desirability of detecting a flat zone in a microscope or visual inspection station, such as is claimed here.

Accordingly, for at least these reasons, Applicants respectfully submit that claims 4 and 6 are patentable over any proper combination of the cited references.

Claims 7 and 8

Claims 7 and 8 depend from claim 1. Applicants respectfully submit that Schram does not remedy the shortcomings of Holmes, Kawashima, Staehle with respect to claim 1, as discussed above. Accordingly, claims 7 and 8 are deemed patentable for at least the reasons set forth above with respect to claim 1.

Claim 9

Among other things, the inspection station of claim 9 includes at least one wafer stopper for aligning the semiconductor wafer on the platform.

In similarity to the discussion above with respect to claim 1, Applicants respectfully submit that no inspection station including such a feature is disclosed or suggested by Holmes, Kawashima, Staehle, or any combination thereof.

Accordingly, for at least these reasons, Applicants respectfully submit that the inspection station of claim 9 is patentable over any combination of Holmes, Kawashima, and Staehle,

Claims 10, 11, 13, 16 and 17

Claims 10, 11, 13, 16 and 17 depend from claim 9 and are each deemed patentable for at least the reasons set forth above with respect to claim 9.

Claim 12

Claim 12 depends from claim 9. Applicants respectfully submit that Schram does not remedy the shortcomings of Holmes, Kawashima, Staehele with respect to claim 9, as discussed above. Accordingly, claim 12 is deemed patentable for at least the reasons set forth above with respect to claim 9.

Claim 14

Claim 14 depends from claim 1. Applicants respectfully submit that An does not remedy the shortcomings of Holmes, Kawashima, Staehele with respect to claim 9, as discussed above. Accordingly, claim 14 is deemed patentable for at least the reasons set forth above with respect to claim 9, and for the following additional reasons.

As explained above with respect to claims 4 and 6, Applicants respectfully submit that no proper motivation or suggestion has been supplied from the prior art to modify the microscope of Holmes (as already modified by Kawashima) to further include a wafer detecting sensor.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 14 is patentable over any proper combination of the cited references.

Claim 20

Among other things, the inspection station of claim 20 includes a stage for holding a semiconducting wafer thereon.

Neither Nomura nor Kawashima nor any combination thereof includes such a stage. Indeed, **the Office Action fails to even assert that either Nomura nor Kawashima includes a stage for holding a semiconducting wafer thereon!**

Instead, the Office Action asserts that Nomura discloses “a stage (11) for supporting a reticle (14).” But of course that is not what Applicants have claimed. Furthermore, Nomura’s stage (11) is absolutely in no way suitable for holding a semiconducting

wafer thereon. Indeed, Applicants respectfully submit that Nomura pertains to the art of photolithography devices and is not analogous art to the present invention, and therefore is not properly combinable with Kawashima or any other reference to sustain a rejection of claims 20-21 under 35 U.S.C. § 103.

Also, Applicants respectfully traverse the proposed combination of Nomura and Kawashima as absolutely lacking any motivation, suggestion or even hint in the prior art! A rejection under 35 U.S.C. § 103 must be based on objective evidence of record, and cannot be supported merely on subjective belief and unknown authority.

“The examiner can satisfy the burden of showing obviousness of the combination **only** by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead the individual to combine the relevant teachings of the references.” In re Lee 61 U.S.P.Q.2d 1430, 1434 (2002) (emphasis added). **The Office Action fails to provide any citation to anything in the prior art whatsoever that would motivate one of ordinary skill in the art of the present invention to add a microscope to Nomura’s photolithography device to “observe the reticle thereon.”**

Accordingly, Applicants respectfully request that the Examiner provide some citation to some **objective teaching** found in the prior art (and not just the Examiner’s personal opinions or hindsight reconstruction of Applicants’ claimed invention) that would have motivated one of ordinary skill in the art at the time the invention was made to modify Nomura’s photolithography device to add Kawashima’s microscope to “observe the reticle thereon,” or else withdraw the rejection of claim 20.

Accordingly, for at least these reasons, Applicants respectfully submit that the inspection station of claim 20 is patentable over the cited prior art.

#### Claim 21

Claim 21 depends from claim 20 and is deemed patentable for at least the reasons set forth above with respect to claim 20, and for the following additional reasons.

Among other things, the inspection station of claim 21 includes at least two



wafer stoppers adapted to align the semiconductor wafer on the stage.

Neither Nomura nor Kawashima nor any combination thereof includes any such wafer stoppers.

For some indiscernable reason, the Office Action mentions four openings (11b) disposed around Nomura's stage (11). Respectfully, so what? Claim 21 does not recite any "openings," and openings are not wafer stoppers!

Accordingly, for at least these additional reasons, Applicants respectfully submit that the inspection station of claim 21 is patentable over the cited prior art.

### CONCLUSION


In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 1-4, 6-14, and 16-21, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact the undersigned attorney to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

VOLENTINE FRANCOS, P.L.L.C.

Date: 21 June 2004

By:   
Kenneth D. Springer  
Registration No. 39,843

VOLENTINE FRANCOS, P.L.L.C.  
12200 Sunrise Valley Drive, Suite 150  
Reston, Virginia 20191  
Telephone No.: (703) 715-0870  
Facsimile No.: (703) 715-0877